**P R O J E C T A B S T R A C T**

**Designing a safekeeping system with human touch detection module**

The aim of our research project was to design an inexpensive, affordable and portable safekeeping system by use of an Arduino microcontroller, which could utilise capacitive sensing of the human body to trigger an alarm – that is, the property of the human body that enables it to act as a capacitor. The objective of our experiments was to maximise the capabilities of our self-constructed sensor by manipulating the program on which it runs on, thereby augmenting its Sensitivity, Consistency, Adaptability, and Reliability (SCAR). Two experiments were conducted, both of which entailed carrying out SCAR assessments on two different alarm trigger methods and a range of trigger values respectively. The former compared the relative effectiveness between using a pre-defined threshold value and measured the relative change within a time frame, while the latter experimented with trigger values ranging from 6 to 38. Experiment 1 found measuring relative change more consistent, reliable and adaptable than using a threshold value, while being less sensitive as a trade-off. The second experiment found that a trigger value of 18 is the most adaptable and universal, while lower values such as 12-14 will offer more sensitivity at the expanse of less versatility. Through these, we have developed a consistent and reliable yet affordable safekeeping system that can toggle between sensitivity and reliability. Its affordability and portability makes large-scale implementation possible, for use in the respective business premises of small branches, independent shops and the like, where cost is a limiting factor.

(245 words)